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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/589,235	08/14/2006	Koji Sato	062892	6956

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EXAMINER

LE, DANG D

ART UNIT	PAPER NUMBER
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2834

MAIL DATE	DELIVERY MODE
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11/25/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.		Applicant(s)	
	10/589,235		SATO ET AL.	
	Examiner		Art Unit	
	Dang D. Le		2834	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 August 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>12/07, 3/07, 8/06</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the angle 10 degrees in claim 3, the skew angle of the rotor pole in claim 4, and the skew angle of the stator teeth in claim 5 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Meckling (4,004,167) in view of Mita et al. (5,841,212).

Regarding claim 1, Meckling shows a radially anisotropic sintered magnet of annular shape having a remanence (Figures 1, 11, and 14), in which the remanence (residual magnetism) in a radial direction of the annulus increases and decreases at intervals of 90° in a circumferential direction of the annulus, and the remanence in a radial direction over the entire circumference of the annulus has a high/suitable value (column 14, lines 20-25).

Meckling does not show the remanence being a maximum of 0.95 to 1.60 T (1 Tesla equal 10000 Gauss) and a minimum equal to 50 to 95% of the maximum (between 4750 Gauss and 16,000 Gauss).

Mita et al. shows the remanence being a maximum of 0.95 to 1.60 T and a minimum equal to 50 to 95% of the maximum (various value including 0.8 T, 1.2 T, and 1.3 T, column 3, lines 25-40) for the purpose of improving magnetic efficiency of the rotor.

Since Meckling and Mita et al. are all from the same field of endeavor; the purpose disclosed by one inventor would have been recognized in the pertinent art of the others.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to select the remanence between a maximum of 0.95 to 1.60 T and a minimum equal to 50 to 95% of the maximum as taught by Mita et al. for the purpose discussed above.

Regarding claim 2, neither Meckling nor Mita et al. shows an inner diameter of up to 90 mm, an outer diameter of up to 100 mm, an inner diameter/outer diameter ratio of at least 0.3, and a height of up to 70 mm.

However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to select an inner diameter of up to 90 mm, an outer diameter of up to 100 mm, an inner diameter/outer diameter ratio of at least 0.3, and a height of up to 70 mm for the purpose of maximizing the motor operation, since it has been held that where the general conditions of a claim are disclosed in the prior art,

discovering the optimum or workable ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

Regarding claim 3, Mita et al. also shows a plurality of stator teeth (Figure 2), wherein the radially anisotropic annular sintered magnet is incorporated after it is magnetized in $4n$ poles (wherein n is an integer of 1 to 20) so that the boundary between N and S poles is located within the range that is centered at the radial direction and it would have been obvious to one having ordinary skill in the art at the time the invention was made to select the magnet such that the remanence exhibits the minimum and extends $\pm 10^\circ$ therefrom in a circumferential direction, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable value involves only routine skill in the art. In re Aller, 105 USPQ 233.

5. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Meckling in view of Mita et al. and further in view of Fukushima (6,657,349).

Regarding claims 4 and 5, the machine of Meckling modified by Mita et al. includes all of the limitations of the claimed invention except for the magnetization being multi-pole skew magnetization and the skew angle being equal to $1/10$ to $2/3$ of the angle of one pole in a circumferential direction of the radially anisotropic annular sintered magnet and the stator tooth being a skew tooth having a skew angle equal to $1/10$ to $2/3$ of the angle of one pole in a circumferential direction of the radially anisotropic annular sintered magnet.

Fukushima shows the magnetization being multi-pole skew magnetization (Figure 5) for the purpose of reducing cogging torque.

Since Meckling, Mita et al., and Fukushima are all from the same field of endeavor; the purpose disclosed by one inventor would have been recognized in the pertinent art of the others.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to set the magnetization with multi-pole skew magnetization and the skew angle being equal to $1/10$ to $2/3$ of the angle of one pole in a circumferential direction of the radially anisotropic annular sintered magnet and to set the stator tooth with a skew tooth having a skew angle equal to $1/10$ to $2/3$ of the angle of one pole in a circumferential direction of the radially anisotropic annular sintered magnet as taught by Fukushima for the purpose discussed above.

Information on How to Contact USPTO

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dang D. Le whose telephone number is (571) 272-2027. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Quyen Leung can be reached on (571) 272-8188. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Dang D Le/
Primary Examiner, Art Unit 2834

11/21/08